1983 *Journal of Spacecraft and Rockets* Index

How to Use the Index

In the Subject Index, pages 632-635, each technical paper is listed under a maximum of three appropriate headings. Note the number in boldface type following each paper title, and use that number to locate the paper in the Chronological Index. The Author Index, page 636, lists all authors associated with a given technical paper. The locating numbers are identical to those in the Subject Index. The Chronological Index, pages 636-640, lists all papers by their unique code numbers. This listing contains titles, authors and their affiliations, and volume, issue number, and page where the paper appeared. It also gives the AIAA paper number, if any, on which the article was based, as well as the "CP" or conference volume number if the paper was published in a bound collection of meetings papers. Comments, Replies, and Errata are listed directly beneath the paper to which they refer. If the paper to which they refer was published prior to 1983, that paper also will appear in both the Subject and Chronological Indexes. Authors of Comments also are listed in the Author Index.

Subject Index

Aircraft Technology, Conventional, STOL/VTOL

Aerodynamics

Space Shuttle Entry Longitudinal Aerodynamic Comparisons of Flight 2 with Preflight Predictions A83-098
Development of Aerodynamic Uncertainties for the Space Shuttle Orbiter A83-097
Hypersonic Dynamic Testing of Ablating Models with Three-Degree-of-Freedom Gas Bearing A83-090
Effects of External Burning on Spike-Induced Separated Flow A83-087
Space Shuttle Entry Aerodynamic Comparisons of Flight 1 with Preflight Predictions A83-004

Guidance and Control

Hypersonic Dynamic Testing of Ablating Models with Three-Degree-of-Freedom Gas Bearing A83-090

Performance

Space Shuttle Entry Longitudinal Aerodynamic Comparisons of Flight 2 with Preflight Predictions A83-098

Structural Design (including Loads)

Optimization Using Sensitivity Analysis A83-001

Testing, Flight and Ground

Hypersonic Dynamic Testing of Ablating Models with Three-Degree-of-Freedom Gas Bearing A83-090
A Summary of Spacecraft Charging Results A83-084

Energy

Combustion

Effects of External Burning on Spike-Induced Separated Flow A83-087

Solar Power Satellites

A Frequency-Division Multiple-Access System Concept for 30/20 GHz High-Capacity Domestic Satellite Service A83-112

Fluid Dynamics

Boundary Layers and Convective Heat Transfer-Laminar

Scaling Analysis of Thermoacoustic Convection in a Zero-Gravity Environment A83-055
Analysis of STS-2 Experimental Heating Rates and Transition Data A83-041
Comparisons of STS-1 Experimental and Predicted Heating Rates A83-038
Impingement of an Oblique Shock Wave on a Cylinder A83-036

Boundary Layers and Convective Heat Transfer-Turbulent

Prediction of Ice/Frost Growth on Insulated Cryogenic Tanks A83-074
Analysis of STS-2 Experimental Heating Rates and Transition Data A83-041
Comparisons of STS-1 Experimental and Predicted Heating Rates A83-038

Boundary-Layer Stability and Transition

Flat Spin of Slender Bodies at High Angles of Attack A83-019

Computational Methods

Aerodynamics of Wraparound Fins A83-062
Nonequilibrium Viscous Shock-Layer Flows over Blunt Sphere-Cones at Angle of Attack A83-061
Hypersonic Viscous Flows Past General Bodies at Angle of Attack and Yaw A83-037
Impingement of an Oblique Shock Wave on a Cylinder A83-036
Computation of Hypersonic Viscous Flow over a Body with Mass Transfer and/or Spin A83-018

Jets, Wakes, and Viscid-Inviscid Flow Interactions

Effects of External Burning on Spike-Induced Separated Flow A83-087
Analysis of Secondary Flows for Tube-Launched Rocket Configurations A83-007
Space Shuttle Entry Aerodynamic Comparisons of Flight 1 with Preflight Predictions A83-004

Multiphase Flows

Scattered Visible and Ultraviolet Solar Radiation from Condensed Attitude Control Jet Plumes A83-070

Nonsteady Aerodynamics

Dynamic Wind Tunnel Tests of the Simulated Shuttle External Cable Trays A83-002

Rarefied Flows

Development of Aerodynamic Uncertainties for the Space Shuttle Orbiter A83-097
Effects of Plume Impingement on a Momentum Bias Communications Satellite A83-010

Shock Waves and Detonations

Impingement of an Oblique Shock Wave on a Cylinder A83-036

Supersonic and Hypersonic Flow

Turbulence Modeling of Flowfields with Massive Surface Ablation A83-100
Optimization of Waverider Configurations Generated from Axisymmetric Conical Flows A83-089
Chemical Equilibrium Laminar or Turbulent Three-Dimensional Viscous Shock-Layer Flows A83-088
Comprehensive Missile Aerodynamics Programs for Preliminary Design A83-080
Hypersonic Viscous Flows Past General Bodies at Angle of Attack and Yaw A83-037
Aerodynamics of Asymmetric Sabot Discard A83-032
Store Separation from Cavities at Supersonic Flight Speeds A83-022
Computation of Hypersonic Viscous Flow over a Body with Mass Transfer and/or Spin A83-018

Viscous Nonboundary-Layer Flows

Turbulence Modeling of Flowfields with Massive Surface Ablation A83-100
Chemical Equilibrium Laminar or Turbulent Three-Dimensional Viscous Shock-Layer Flows A83-088
Effect of Low Reynolds Number Turbulence Amplification on the Galileo Probe Flowfield A83-078
Hypersonic Viscous Flows Past General Bodies at Angle of Attack and Yaw A83-037
Aerodynamics of Asymmetric Sabot Discard A83-032
Computation of Hypersonic Viscous Flow over a Body with Mass Transfer and/or Spin A83-018

Wave Motion and Sloshing

Scaling Analysis of Thermoacoustic Convection in a Zero-Gravity Environment A83-055
Pressure Measurements of a Rotating Liquid for Impulsive Coning Motion A83-017

Interdisciplinary Topics

Analytical and Numerical Methods

Product Decompositions for Certain Types of Coordinate Transformation A83-096
Methods for Validating Computer Simulation Models of Missile Systems A83-048
Space Shuttle Orbiter Charging A83-005
Optimization Using Sensitivity Analysis A83-001

Astrodynamics

Product Decompositions for Certain Types of Coordinate Transformation A83-096
Orbital and Cloud Cover Sampling Analyses for Multisatellite Earth Radiation Budget Experiments A83-093
Classification of Orbits with Regard to Collision Hazard in Space A83-092

Atmospheric and Space Sciences

Orbital and Cloud Cover Sampling Analyses for Multisatellite Earth Radiation Budget Experiments A83-093
A Spacelab Principal Investigator's Guidance for Planning Scientific Experiments Using the Shuttle A83-091
A Summary of Spacecraft Charging Results A83-084
Transient Pulse Monitor Data from the P78-2 (SCATHA) Spacecraft A83-083
Summary of Environmentally Induced Electrical Discharges on the P78-2 (SCATHA) Satellite A83-082
Electrostatic Charging and Radiation Shielding Design Philosophy for a Synchronous Satellite A83-081
Shuttle Subsonic Horizontal Wind Estimation A83-071
Scattered Visible and Ultraviolet Solar Radiation from Condensed Attitude Control Jet Plumes A83-070
Artificial Electron Beams as Probes of the Magnetosphere A83-051
Substellite Studies of Wave, Plasma, and Chemical Injections from Spacelab A83-042
July 1981 NASA Workshop on Passive Remote Sensing of the Troposphere A83-029
Atmospheric Definition for Shuttle Aerothermodynamic Investigations A83-023
Geosynchronous Environment for Severe Spacecraft Charging A83-006

Celestial Mechanics

Classification of Orbits with Regard to Collision Hazard in Space A83-092
Space Shuttle Orbiter Charging A83-005

Computer Communications, Information Processing and Software

Bit Error Rate Evaluation of GSTDN/TDRSS Communication Links A83-043

Reliability, Maintainability, and Logistics Support

Thermal Storage Life of Solid-Propellant Motors A83-025

Research Facilities and Instrumentation

A Spacelab Principal Investigator's Guidance for Planning Scientific Experiments Using the Shuttle A83-091
Theoretical and Experimental Evaluation of an Indoor Rocket Test Stand A83-047

Safety

MOSES (Manned Orbital Space Escape System)--A Hypothetical Application A83-027

Satellite Communication Systems (including Terrestrial Stations)

Improved Satellite Repeater Amplitude-Frequency Measurement A83-113
A Frequency-Division Multiple-Access System Concept for 30/20 GHz High-Capacity Domestic Satellite Service A83-112
A High-Speed, Time-Division Multiple-Access Communication Link Demonstration A83-095
Unfurlable Offset Antenna Design for L- and C-Band Application A83-094
Electrostatic Charging and Radiation Shielding Design Philosophy for a Synchronous Satellite A83-081
Design Summary of the INTELSAT V Spacecraft A83-069
Bit Error Rate Evaluation of GSTDN/TDRSS Communication Links A83-043

Sensor Systems

Orbital and Cloud Cover Sampling Analyses for Multisatellite Earth Radiation Budget Experiments A83-093
Substellite Studies of Wave, Plasma, and Chemical Injections from Spacelab A83-042
July 1981 NASA Workshop on Passive Remote Sensing of the Troposphere A83-029

Launch Vehicle and Missile (LV/M) Technology

Aerodynamic Heating and Ablation

Lifting Entry Vehicle Mass Reduction Through Integrated Thermostructural/Trajectory Design A83-108
Effect of Low Reynolds Number Turbulence Amplification on the Galileo Probe Flowfield A83-078
Real Gas Flows Over Complex Geometries at Moderate Angles of Attack A83-059
Comparisons of STS-1 Experimental and Predicted Heating Rates A83-038

Aerodynamics

Experimental Surface Pressures on Cone-Derived Waveriders for $M_\infty = 3$-5 A83-101
Comprehensive Missile Aerodynamics Programs for Preliminary Design A83-080
Equivalent Angle-of-Attack Method for Estimating Nonlinear Aerodynamics of Missile Fins A83-065
Axisymmetric Nose Inlet Effects on Supersonic Airloads A83-063
Aerodynamics of Wraparound Fins A83-062
Accuracy Criteria For Evaluating Supersonic Missile Aerodynamic Coeffient Predictions A83-060
Store Separation from Cavities at Supersonic Flight Speeds A83-022
Aerodynamic Characteristics for a Slender Missile with Wrap-Around Fins A83-021
Optimum Wing Sizing of a Single-Stage-to-Orbit Vehicle A83-020
Subsonic Rolling Moments for Wing Roll Control of a Cruciform Missile Model A83-016
Deployment of a Spin Parachute in the Altitude Region of 260,000 Ft A83-003
Analysis of Combustion in Recirculating Flow for Rocket Exhaust in Supersonic Streams A82-106

Configurational Design

Optimization of Waverider Configurations Generated from Axisymmetric Conical Flows A83-089
Aerodynamics of Wraparound Fins A83-062
Accuracy Criteria For Evaluating Supersonic Missile Aerodynamic Coeffient Predictions A83-060
Optimum Wing Sizing of a Single-Stage-to-Orbit Vehicle A83-020
Subsonic Rolling Moments for Wing Roll Control of a Cruciform Missile Model A83-016

Dynamics and Control

Procedure for Generating Ground Wind Environments for Shuttle Liftoff Studies A83-079
MX Launcher Gas Generator Development A83-046
Rigid Body Collision Model for Submunition Dispersion Simulation A83-035
Pressure Measurements of a Rotating Liquid for Impulsive Coning Motion A83-017
Subsonic Rolling Moments for Wing Roll Control of a Cruciform Missile Model A83-016

Launch Vehicle Systems

MX Launcher Gas Generator Development A83-046
Hydrocarbon Rocket Engines for Earth-to-Orbit Vehicles A83-044
Optimum Wing Sizing of a Single-Stage-to-Orbit Vehicle A83-020
Analysis of Secondary Flows for Tube-Launched Rocket Configurations A83-007

Missile Systems

Experimental Surface Pressures on Cone-Derived Waveriders for $M_\infty = 3$-5 A83-101
Comprehensive Missile Aerodynamics Programs for Preliminary Design A83-080
Store Separation from Cavities at Supersonic Flight Speeds A83-022

Propulsion and Propellant Systems

Low-Cost Titanium Propellant Tankage A83-107
Axisymmetric Nose Inlet Effects on Supersonic Airloads A83-063
Hydrocarbon Rocket Engines for Earth-to-Orbit Vehicles A83-044
Assessment of Future Solid Rocket Motor Flight Instrumentation/Data Needs A83-028
Erosive Burning of Composite Solid Propellants: Mechanism, Correlation, and Grain Design Applications A83-008

Simulation

Methods for Validating Computer Simulation Models of Missile Systems A83-048
Rigid Body Collision Model for Submunition Dispersion Simulation A83-035
Pressure Measurements of a Rotating Liquid for Impulsive Coning Motion A83-017

Sounding Rocket Systems

Limiting Payload Deceleration During Ground Impact A83-034

Structural Design (including Loads)

Procedure for Generating Ground Wind Environments for Shuttle Liftoff Studies A83-079
Limiting Payload Deceleration During Ground Impact A83-034

Subsystem Design and Ground Support

Assessment of Future Solid Rocket Motor Flight Instrumentation/Data Needs A83-028

Testing, Flight and Ground

In-Flight Pressure-Time Recording for Short Burning-Time Rocket Motors A83-067

Theoretical and Experimental Evaluation of an Indoor Rocket Test Stand A83-047
Assessment of Future Solid Rocket Motor Flight Instrumentation/Data Needs A83-028
Aerodynamic Characteristics for a Slender Missile with Wrap-Around Fins A83-021
Deployment of a Spin Parachute in the Altitude Region of 260,000 Ft A83-003

Trajectories and Tracking Systems

Rigid Body Collision Model for Submunition Dispersion Simulation A83-035
Deployment of a Spin Parachute in the Altitude Region of 260,000 Ft A83-003

Marine Technology

Propulsion

Design and Testing of a Water Tip Jet Propeller A83-054

Propulsion

Airbreathing Propulsion

Swirl Combustor Flow Visualization Studies in a Water Tunnel A83-106
Modeling Solid-Fuel Ramjet Combustion, Including Radiation to the Fuel Surface A83-076
Axisymmetric Nose Inlet Effects on Supersonic Airloads A83-063
Nonequilibrium Viscous Shock-Layer Flows over Blunt Sphere-Cones at Angle of Attack A83-061

Combustion and Combustor Designs

Swirl Combustor Flow Visualization Studies in a Water Tunnel A83-106
Test Verification of LOX/RP-1 High-Pressure Fuel/Oxidizer-Rich Preburner Designs A83-105
Modeling Solid-Fuel Ramjet Combustion, Including Radiation to the Fuel Surface A83-076

Combustion Stability, Ignition, and Detonation

Test Verification of LOX/RP-1 High-Pressure Fuel/Oxidizer-Rich Preburner Designs A83-105
Aging Studies on Carboxy Terminated Polybutadiene (CTPB) Binder and Propellant A83-068
Pulsing Techniques for Solid-Propellant Rocket Motors: Modeling and Cold-Flow Testing A83-026
Erosive Burning of Composite Solid Propellants: Mechanism, Correlation, and Grain Design Applications A83-008

Electric and Advanced Space Propulsion

The Flexible Magnetic Field Thruster A83-111
The Electrothermal Ramjet A83-110
Pulsed Plasma Thruster Ignitor Plug Ignition Characteristics A83-086
Characterization of Advanced Electric Propulsion Systems A83-053
Measured Performance of a Multimegawatt MPD Thruster A83-052
Augmented Electrothermal Hydrazine Thruster Development A83-030
Electromagnetic Noise from an Ion Engine System A83-014
Inert Gas Thruster Technology A83-013

Engine Performance

Swirl Combustor Flow Visualization Studies in a Water Tunnel A83-106
In-Flight Pressure-Time Recording for Short Burning-Time Rocket Motors A83-067
Augmented Electrothermal Hydrazine Thruster Development A83-030
Effects of Plume Impingement on a Momentum Bias Communications Satellite A83-010

Environmental Effects

Service Life Analysis of Rocket Motors with Internal Gas Generation A83-045
Thermal Storage Life of Solid-Propellant Motors A83-025

Fuels and Propellants, Properties of

Test Verification of LOX/RP-1 High-Pressure Fuel/Oxidizer-Rich Preburner Designs A83-105
A Constitutive Formulation for High-Elongation Propellants A83-104
Calculation of Transient Thermal Stresses in Solid Rocket Propellants A83-075
Assessment of the Thermal Decomposition and Combustion Behavior of Double-Base Propellants A83-072
Aging Studies on Carboxy Terminated Polybutadiene (CTPB) Binder and Propellant A83-068
Pulsing Techniques for Solid-Propellant Rocket Motors: Modeling and Cold-Flow Testing A83-026
Studies on Thermal Decomposition of Double-Base Propellants A83-024

Liquid Rocket Engines and Missile Systems

Low-Cost Titanium Propellant Tankage A83-107
Hydrocarbon Rocket Engines for Earth-to-Orbit Vehicles A83-044
Augmented Electrothermal Hydrazine Thruster Development A83-030

Propulsion for Marine Application

Design and Testing of a Water Tip Jet Propeller A83-054

Solid and Hybrid Rocket Engines

A Constitutive Formulation for High-Elongation Propellants A83-104
Theoretical and Experimental Evaluation of an Indoor Rocket Test Stand A83-047
Service Life Analysis of Rocket Motors with Internal Gas Generation A83-045
Pulsing Techniques for Solid-Propellant Rocket Motors: Modeling and Cold-Flow Testing A83-026
Erosive Burning of Composite Solid Propellants: Mechanism, Correlation, and Grain Design Applications A83-008

Spacecraft Technology

Attitude Determination

Innovative Air Data System for the Space Shuttle Orbiter A83-011

Configurational and Structural Design (including Loads)

Design Summary of the INTELSAT V Spacecraft A83-069
Geosynchronous Environment for Severe Spacecraft Charging A83-006
Optimization Using Sensitivity Analysis A83-001

Data Sensing, Presentation, and Transmission

July 1981 NASA Workshop on Passive Remote Sensing of the Troposphere A83-029

Dynamics and Control

Procedure for Generating Ground Wind Environments for Shuttle Liftoff Studies A83-079
Exceedance Statistics of Accelerations Resulting from Thruster Firings on the Apollo-Soyuz Mission A83-056
Effects of Plume Impingement on a Momentum Bias Communications Satellite A83-010

Earth-Orbital Trajectories

Mission Analysis Techniques for Attached Shuttle Payloads A83-109
Classification of Orbits with Regard to Collision Hazard in Space A83-092
Test/Flight Thermal Data Comparisons for Viking and SCATHA A83-050
Substellite Studies of Wave, Plasma, and Chemical Injections from Spacelab A83-042

Entry Vehicle Aerodynamic Heating

Turbulence Modeling of Flowfields with Massive Surface Ablation A83-100
Orbiter Entry Leeside Heat-Transfer Data Analysis A83-099
Chemical Equilibrium Laminar or Turbulent Three-Dimensional Viscous Shock-Layer Flows A83-088
Nonequilibrium Viscous Shock-Layer Flows over Blunt Sphere-Cones at Angle of Attack A83-061
Analysis of STS-2 Experimental Heating Rates and Transition Data A83-041
An Empirical Method for Computing Leeside Centerline Heating on the Space Shuttle Orbiter A83-040
Benchmark Determination of Shuttle Orbiter Entry Aerodynamic Heat-Transfer Data A83-039

Entry Vehicle Aerodynamics

Space Shuttle Entry Longitudinal Aerodynamic Comparisons of Flight 2 with Preflight Predictions A83-098
Development of Aerodynamic Uncertainties for the Space Shuttle Orbiter A83-097
Shuttle Subsonic Horizontal Wind Estimation A83-071
Plume/Flowfield Jet Interaction Effects on the Space Shuttle Orbiter during Entry A83-064
Real Gas Flows Over Complex Geometries at Moderate Angles of Attack A83-059
Flat Spin of Slender Bodies at High Angles of Attack A83-019
Space Shuttle Entry Aerodynamic Comparisons of Flight 1 with Preflight Predictions A83-004

Entry Vehicle Configuration Design

Optimization of Waverider Configurations Generated from Axisymmetric Conical Flows A83-089
Research in Structures and Materials for Future Space Transportation Systems--An Overview A83-015

Prediction of a Propellant Tank Pressure History Using State Space Methods A83-009

Entry Vehicle Dynamics and Control

Plume/Flowfield Jet Interaction Effects on the Space Shuttle Orbiter during Entry A83-064
Innovative Air Data System for the Space Shuttle Orbiter A83-011

Entry Vehicle Mission Studies and Flight Mechanics

Lifting Entry Vehicle Mass Reduction Through Integrated Thermostructural/Trajectory Design A83-108
Shuttle Subsonic Horizontal Wind Estimation A83-071

Entry Vehicle Structural Design

Research in Structures and Materials for Future Space Transportation Systems--An Overview A83-015

Entry Vehicle Subsystems

Innovative Air Data System for the Space Shuttle Orbiter A83-011
Prediction of a Propellant Tank Pressure History Using State Space Methods A83-009

Entry Vehicle Testing, Flight and Ground

Plume/Flowfield Jet Interaction Effects on the Space Shuttle Orbiter during Entry A83-064

Entry Vehicles and Landers

Test/Flight Thermal Data Comparisons for Viking and SCATHA A83-050
MOSES (Manned Orbital Space Escape System)--A Hypothetical Application A83-027

Meteoroid and Radiation Protection

HZE Particle Shielding Using Confined Magnetic Fields A83-114
Electrostatic Charging and Radiation Shielding Design Philosophy for a Synchronous Satellite A83-081

Mission Analysis

Mission Analysis Techniques for Attached Shuttle Payloads A83-109
Space Platform Accommodations A83-102
A Spacelab Principal Investigator's Guidance for Planning Scientific Experiments Using the Shuttle A83-091
Exceedance Statistics of Accelerations Resulting from Thruster Firings on the Apollo-Soyuz Mission A83-056
Bit Error Rate Evaluation of GSTDN/TDRSS Communication Links A83-043
Geosynchronous Environment for Severe Spacecraft Charging A83-006

Propulsion Systems Integration

Contamination Measurements During Operation of Hydrazine Thrusters on the P78-2 (SCATHA) Satellite A83-085

Signatures and Tracking

Scattered Visible and Ultraviolet Solar Radiation from Condensed Attitude Control Jet Plumes A83-070

Simulation

Procedure for Generating Ground Wind Environments for Shuttle Liftoff Studies A83-079
Exceedance Statistics of Accelerations Resulting from Thruster Firings on the Apollo-Soyuz Mission A83-056
SCATHA Conductive Spacecraft Materials Development A83-031

Space Medicine (including Weightlessness, Radiation Effects, Psychology, etc.)

HZE Particle Shielding Using Confined Magnetic Fields A83-114

Space Station Systems, Manned

MOSES (Manned Orbital Space Escape System)--A Hypothetical Application A83-027

Systems

Prediction of a Propellant Tank Pressure History Using State Space Methods A83-009

Temperature Control

Automatic Thermal Control Switches A83-103
Contamination Measurements During Operation of Hydrazine Thrusters on the P78-2 (SCATHA) Satellite A83-085
Research in Structures and Materials for Future Space Transportation Systems--An Overview A83-015
Specular Effects of Shuttle Orbiter Radiators on a Typical Payload A83-012

Testing, Flight and Ground

Contamination Measurements During Operation of Hydrazine Thrusters on the P78-2 (SCATHA) Satellite A83-085
Transient Pulse Monitor Data from the P78-2 (SCATHA) Spacecraft A83-083
Summary of Environmentally Induced Electrical Discharges on the P78-2 (SCATHA) Satellite A83-082
Test/Flight Thermal Data Comparisons for Viking and SCATHA A83-050

Structural Mechanics and Materials

Materials, Properties of

A Constitutive Formulation for High-Elongation Propellants A83-104
A Summary of Spacecraft Charging Results A83-084
Calculation of Transient Thermal Stresses in Solid Rocket Propellants A83-075
Matrix/Fiber Interface Effects on Kevlar 49 Pressure Vessel Performance A83-073
SCATHA Conductive Spacecraft Materials Development A83-031

Structural Composite Materials

Matrix/Fiber Interface Effects on Kevlar 49 Pressure Vessel Performance A83-073

Structural Design

Unfurlable Offset Antenna Design for L- and C-Band Application A83-094
Design for Temperature and Thermal Buckling Constraints Employing a Noneigenvalue Formulation A83-066

Structural Durability (including Fatigue and Fracture)

Service Life Analysis of Rocket Motors with Internal Gas Generation A83-045

Thermal Stresses

Calculation of Transient Thermal Stresses in Solid Rocket Propellants A83-075
Design for Temperature and Thermal Buckling Constraints Employing a Noneigenvalue Formulation A83-066
Thermal Storage Life of Solid-Propellant Motors A83-025

Thermophysics and Thermochemistry

Ablation, Pyrolysis, Thermal Decomposition and Degradation (including Refractories)

Assessment of the Thermal Decomposition and Combustion Behavior of Double-Base Propellants A83-072
Thermal Decomposition Kinetics of Polybutadiene Binders A82-018

Heat Conduction

Automatic Thermal Control Switches A83-103

Radiation and Radiative Heat Transfer

Nonequilibrium Radiative Heating during Outer Planet Atmospheric Entry A83-077
Prediction of Ice/Frost Growth on Insulated Cryogenic Tanks A83-074
Scattering of Radiation by Particles in Low-Altitude Plumes A83-033

Radiatively Coupled Flows and Heat Transfer

Nonequilibrium Radiative Heating during Outer Planet Atmospheric Entry A83-077

Thermal Control

Automatic Thermal Control Switches A83-103
Design for Temperature and Thermal Buckling Constraints Employing a Noneigenvalue Formulation A83-066
SCATHA Conductive Spacecraft Materials Development A83-031
Specular Effects of Shuttle Orbiter Radiators on a Typical Payload A83-012

Thermal Modeling and Analysis

Modeling Solid-Fuel Ramjet Combustion, Including Radiation to the Fuel Surface A83-076
Prediction of Ice/Frost Growth on Insulated Cryogenic Tanks A83-074
Benchmark Determination of Shuttle Orbiter Entry Aerodynamic Heat-Transfer Data A83-039
Specular Effects of Shuttle Orbiter Radiators on a Typical Payload A83-012

Thermochemistry and Chemical Kinetics

Nonequilibrium Radiative Heating during Outer Planet Atmospheric Entry A83-077
Aging Studies on Carboxy Terminated Polybutadiene (CTPB) Binder and Propellant A83-068
Real Gas Flows Over Complex Geometries at Moderate Angles of Attack A83-059

Author Index

Adamo, R. C., A83-083
Adams, P. F., A83-081
Allen, J. M., A83-080
Allen, W. L., A83-028
Anderson, W. E., A83-063
Arai, I., A83-019
Arora, R., A83-008
Aston, G., A83-086
Bailey, W., A83-102
Bancroft, C. D., A83-067
Bar-Haim, B., A83-062
Barbee, T. W., A83-096
Barberis, N. J., A83-069
Baum, J. D., A83-026
Beims, W. G., A83-017
Berk, G., A83-112
Bertin, J. J., A83-007, A83-021
Blair, A. B., Jr., A83-080
Bouslog, S. A., A83-021
Brady, M. E., A83-086
Brophy, J. R., A83-111
Brown, C., A83-079
Brown, E. M., A83-081
Burch, J. L., A83-042
Burton, R. L., A83-052
Callanan, W., A83-095
Carre, D. J., A83-085
Catani, U., A83-021
Chobotov, V. A., A83-092
Christensen, L. W., A83-104
Clark, K. E., A83-052
Coffey, R. E., A83-043
Compton, H. R., A83-071
Connor, M., A83-009
Cost, T. L., A83-045, A83-075
Daly, P., A83-113
D'Amico, W. P., Jr., A83-017
Daniel, D. C., A83-101
De Amicis, R., A83-021
Dietenberger, M. A., A83-074
Dillenius, M. F. E., A83-080
Elgin, J. B., A83-070
Elkman, W. R., A83-081
Estey, P. N., A83-009
Fichtl, G. H., A83-056, A83-079
Findlay, J. T., A83-071
Fink, M. R., A83-063
Fischer, N. H., A83-049
Fox, S. M., A83-010
Fredricks, R. W., A83-042
Gayathri, V., A83-068
Gibson, G. G., A83-093
Gongwer, C. A., A83-054
Greene, L., A83-048
Gruninger, J., A83-033
Gupta, R. N., A83-078, A83-100
Gussenhoven, M. S., A83-006
Haftka, R. T., A83-066
Hall, D. F., A83-085
Harrison, E. F., A83-093
Hauser, C. C., III, A83-001
Heck, M. L., A83-011
Heller, R. A., A83-025
Helms, V. T., III, A83-040
Hemsch, M. J., A83-065, A83-080
Herbig, H., A83-094
Hewitt, P. W., A83-106
Hoeber, C. F., A83-069
Holland, R. L., A83-056
Hopkins, P. C., A83-073
Huffman, P. J., A83-074
Huffman, R. E., A83-070
Humphries, W. R., A83-012
Hung, C. M., A83-036
Jackson, L. R., A83-015
Jahn, R. G., A83-052
Jean, P. N., A83-112
Jecmen, D. M., A83-087
Jischke, M. C., A83-089, A83-101
Kanipe, D. B., A83-004, A83-064
Katz, I., A83-005
Kaufman, H. R., A83-013
Keafer, L. S., Jr., A83-029
Kelly, G. M., A83-071
Kelly, H. N., A83-015
Kim, B. S., A83-089
Kim, M. D., A83-018, A83-037, A83-059, A83-061
Kishore, K., A83-024, A83-068, A83-072
Kolb, C. E., A83-070
Koons, H. C., A83-082
Korst, H. H., A83-007
Korting, P. A. O. G., A83-047
Krane, R. J., A83-055
Krieger, R. J., A83-060
Krishnan, K., A82-018
Krumins, M. V., A83-090
Kubota, H., A83-019
Kudo, I., A83-014
Kuo, K. K., A83-008
LaBerge, J. G., A83-002
Lambros, S. D., A83-109
Lawrence, G. M., A83-043
Lawver, B. R., A83-105
Leach, A. E., A83-107
Lehn, W. L., A83-031
Levine, J. N., A83-026
Lewis, C. H., A83-018, A83-037, A83-059, A83-061, A83-088
Lewis, D. H., Jr., A83-009
Littles, J. W., A83-012
Lloyd, B. A., A83-073
Lovine, R. L., A83-026
Lyons, R. B., A83-033, A83-070
Mace, A. C. H., A82-106
Machida, K., A83-014
Markatos, N. C., A82-106
Martin, D. L., Jr., A83-045
Martin, J. A., A83-044
Masullo, S., A83-021
Matarrese, J. R., A83-083
Matsuzaka, M., A83-019
Mayer, R. T., A83-027
McIntyre, A., A83-070
McKinnis, J. A., A83-046
Metochianakis, M. E., A83-076
Minnis, P., A83-093
Mironer, A., A83-034
Mitchell, C. E., A83-110
Mizera, P. F., A83-084
Montgomery, D. C., A83-048
Moss, J. N., A83-078
Mullen, E. G., A83-006
Mumford, N. A., A83-073
Murakami, H., A83-014
Musgrove, M. D., A83-001
Nein, M. E., A83-102
Nelson, H. F., A83-077
Netzer, D. W., A83-076
Nielsen, J. N., A83-065
Ninan, K. N., A82-018
Nowatzki, J. A., A83-054
O'Connell, A. R., A83-046
Orlik-Ruckemann, K. J., A83-002
Pai Verneker, V. R., A83-024, A83-068, A83-072
Parang, M., A83-055
Parks, D. E., A83-005
Paulsen, D. E., A83-070
Plostins, P., A83-032
Pontoppidan, K., A83-094
Price, E. W., A82-018
Price, J. M., A83-023
Pruett, C. D., A83-011
Purvis, J. W., A83-035
Rasmussen, M. L., A83-089, A83-101
Ray, P. K., A83-053
Reding, J. P., A83-087
Reed, J. M., A83-001
Regan, F. J., A83-090
Reichle, H. G., Jr., A83-029
Reitsma, H. J., A83-047
Rempt, R. D., A83-050
Reynolds, R. C., A83-049
Rice, E. E., A83-049
Robinson, R. S., A83-013
Roederer, A., A83-094
Rogers, T. H., A83-017
Romere, P. O., A83-004, A83-098
Rose, D., A83-095
Rotholz, E., A83-112
Rummler, D. R., A83-015
Sarkozy, Z., A83-095
Sawyer, W. C., A83-080
Schafer, W., A83-094
Schetz, J. A., A83-106
Schmidt, E. M., A83-032
Schmitz, H. D., A83-030
Seginer, A., A83-062
Sekaran, V. G., A83-016
Shaw, B. D., A83-110
Shawhan, S. D., A83-042, A83-091
Shubha, K. R., A83-068
Siemers, P. M., III, A83-011
Silbert, M. N., A83-003
Singh, M. P., A83-025
Smith, E. C., A83-081
Spalding, D. B., A82-106
Sridhara, K., A83-068
Stallings, R. L., Jr., A83-022
Steenborg, M., A83-030
Stuart, J. R., A83-043
Subhas, C. B. V., A83-024, A83-072
Swaminathan, S., A83-059, A83-061
Swanson, S. R., A83-104
Szema, K. Y., A83-088
Szpakowski, R. J., A83-107
Tatchell, D. G., A82-106
Thareja, R. R., A83-088
Thomas, R., A83-106
Throckmorton, D. A., A83-039, A83-099
Tits, D. G., A83-113
Toda, Y., A83-014
Townsend, L. W., A83-114
Trock, D. C., A83-013
Turner, L. D., A83-012
Underwood, J. M., A83-097
Urquhart, R., A83-034
Wadsworth, D. V. Z., A83-081
Walters, R., A83-034
Weeks, G. E., A83-045
White, B. E., A83-112
White, F. X., A83-008
Wilbur, P. J., A83-110, A83-111
Wilhite, A. W., A83-020
Williams, G. J., A83-067
Williams, J. E., A83-060
Winckler, J. R., A83-051
Wing, L. D., A83-103
Wolf, H., A83-011
Wormhoudt, J., A83-033
Wu, X., A83-008
Wurster, K. E., A83-108
Young, J. C., A83-004, A83-097, A83-098
Zoby, E. V., A83-038, A83-041, A83-099

Chronological Index

A82-018 Thermal Decomposition Kinetics of Polybutadiene Binders. K. N. Ninan and K. Krishnan, *Vikram Sarabhai Space Center* (JSR **19**, 1, p. 92) Engineering Note
Technical Comment by E. W. Price, *Georgia Institute of Technology* (JSR **20**, 3, p. 320)

A82-106 Analysis of Combustion in Recirculating Flow for Rocket Exhaust in Supersonic Streams. A. C. H. Mace, *Ministry of Defence*; and N. C. Markatos, D. B. Spalding, D. G. Tatchell, *CHAM Ltd.* (JSR **19**, 6, p. 557) Article based on AIAA Paper 81-1386 Errata (JSR, **20**, 3, p. 320)

A83-001 Optimization Using Sensitivity Analysis. Max D. Musgrove and James M. Reed, *Boeing Aerospace Company*; and Charles C. Hauser III, *Westinghouse Plant Apparatus Division* (JSR **20**, 1, p. 3) Synoptic based on AIAA Paper 81-0516 CP811

A83-002 Dynamic Wind Tunnel Tests of the Simulated Shuttle External Cable Trays. K. J. Orlik-Ruckemann, *National Recearch Council of Canada*; and J. G. LaBerge, *National Research Council of Canada* (JSR **20**, 1, p. 5) Article based on AIAA Paper 81-1879 CP816

A83-003 Deployment of a Spin Parachute in the Altitude Region of 260,000 Ft. Mendel N. Silbert, *NASA Goddard Space Flight Center* (JSR **20**, 1, p. 11) Article based on AIAA Paper 81-1942

A83-004 Space Shuttle Entry Aerodynamic Comparisons of Flight 1 with Preflight Predictions. Paul O. Romere, David B. Kanipe and James C. Young, *NASA Lyndon B. Johnson Space Center* (JSR **20**, 1, p. 15) Article based on AIAA Paper 81-2476

A83-005 Space Shuttle Orbiter Charging. I. Katz and D. E. Parks, *S-CUBED* (JSR **20**, 1, p. 22) Article based on AIAA Paper 82-0119

A83-006 Geosynchronous Environment for Severe Spacecraft Charging. M. S. Gussenhoven, *Boston College*; and E. G. Mullen, *Air Force Geophysics Laboratory, Hanson Air Force Base* (JSR **20**, 1, p. 26) Article based on AIAA Paper 82-0271

A83-007 Analysis of Secondary Flows for Tube-Launched Rocket Configurations. H. H. Korst, *The University of Illinois at Urbana*; and John J. Bertin, *The University of Texas at Austin* (JSR **20**, 1, p. 35) Article based on AIAA Paper 81-1222

A83-008 Erosive Burning of Composite Solid Propellants: Mechanism, Correlation, and Grain Design Applications. R. Arora, X. Wu, F. X. White and K. K. Kuo, *The Pennsylvania State University* (JSR **20**, 1, p. 43) Article based on AIAA Paper 81-1581

A83-009 Prediction of a Propellant Tank Pressure History Using State Space Methods. Paul N. Estey, David H. Lewis Jr. and Maureen Connor, *Jet Propulsion Laboratory, California Institute of Technology* (JSR **20**, 1, p. 49) Article

A83-010 Effects of Plume Impingement on a Momentum Bias Communications Satellite. S. M. Fox, *RCA Corporation* (JSR **20**, 1, p. 55) Article based on AIAA Paper 81-1383

A83-011 Innovative Air Data System for the Space Shuttle Orbiter. C. David Pruett, Henry Wolf and Michael L. Heck, *Analytical Mechanics Associates*; and Paul M. Siemers III, *NASA Langley Research Center* (JSR **20**, 1, p. 61) Article based on AIAA Paper 81-2455

A83-012 Specular Effects of Shuttle Orbiter Radiators on a Typical Payload. L. D. Turner, W. R. Humphries and J. W. Littles, *NASA Marshall Space Flight Center* (JSR **20**, 1, p. 70) Article based on AIAA Paper 81-1074

A83-013 Inert Gas Thruster Technology. Harold R. Kaufman, Raymond S. Robinson and Donald C. Trock, *Colorado State University* (JSR **20**, 1, p. 77) Article based on AIAA Paper 81-0721

A83-014 Electromagnetic Noise from an Ion Engine System. I. Kudo Electrotechnical Laboratory (Japan), *K. Machida*, Y. Toda and H. Murakami, *Electrotechnical Laboratory (Japan)* (JSR **20**, 1, p. 84) Article based on AIAA Paper 81-0724

A83-015 Research in Structures and Materials for Future Space Transportation Systems--An Overview. H. Neale Kelly, Donald R. Rummler and L. Robert Jackson, *NASA Langley Research Center* (JSR **20**, 1, p. 89) Article based on AIAA Paper 79-0859 CP797

A83-016 Subsonic Rolling Moments for Wing Roll Control of a Cruciform Missile Model. V. G. Sekaran, *The Queen's University of Belfast* (JSR **20**, 2, p. 97) Synoptic

A83-017 Pressure Measurements of a Rotating Liquid for Impulsive Coning Motion. William P. D'Amico Jr., William G. Beims and Thomas H. Rogers, *Ballistic Research Laboratory, Aberdeen Proving Ground* (JSR **20**, 2, p. 99) Synoptic based on AIAA Paper 82-0246

A83-018 Computation of Hypersonic Viscous Flow over a Body with Mass Transfer and/or Spin. M. D. Kim and C. H. Lewis, *Virginia Polytechnic Institute and State University* (JSR **20**, 2, p. 101) Article based on AIAA Paper 81-1044

A83-019 Flat Spin of Slender Bodies at High Angles of Attack. Hirotoshi Kubota, Isao Arai and Masayoshi Matsuzaka, *University of Tokyo* (JSR **20**, 2, p. 108) Article based on AIAA Paper 82-0054

A83-020 Optimum Wing Sizing of a Single-Stage-to-Orbit Vehicle. Alan W. Wilhite, *NASA Langley Research Center* (JSR **20**, 2, p. 115) Article based on AIAA Paper 82-0174

A83-021 Aerodynamic Characteristics for a Slender Missile with Wrap-Around Fins. Umberto Catani, *BPD Difesa Spazio (Italy)*; John J. Bertin, *The Univeristy of Texas at Austin*; Roberto De Amicis and Sergio Masullo, *BPD Difesa Spazio (Italy)*; and Stanley A. Bouslog, *The University of Texas at Austin* (JSR **20**, 2, p. 122) Article based on AIAA Paper 82-0319

A83-022 Store Separation from Cavities at Supersonic Flight Speeds. Robert L. Stallings Jr., *NASA Langley Research Center* (JSR **20**, 2, p. 129) Article based on AIAA Paper 82-0372

A83-023 Atmospheric Definition for Shuttle Aerothermodynamic Investigations. Joseph M. Price, *NASA Langley Research Center* (JSR **20**, 2, p. 133) Article

A83-024 Studies on Thermal Decomposition of Double-Base Propellants. V. R. Pai Verneker and K. Kishore, *Indian Institute of Science*; and C. B. V. Subhas, *Defence Research and Development Laboratory (India)* (JSR **20**, 2, p. 141) Article

A83-025 Thermal Storage Life of Solid-Propellant Motors. R. A. Heller and M. P. Singh, *Virginia Polytechnic Institute and State University* (JSR **20**, 2, p. 144) Article based on AIAA Paper 81-1188

A83-026 Pulsing Techniques for Solid-Propellant Rocket Motors: Modeling and Cold-Flow Testing. Joseph D. Baum, *University of Dayton Research Institute*; Richard L. Lovine, *Aerojet Tactical Systems*; and Jay N. Levine, *Air Force Rocket Propulsion Laboratory, Edwards Air Force Base* (JSR **20**, 2, p. 150) Article based on AIAA Paper 82-0359

A83-027 MOSES (Manned Orbital Space Escape System)--A Hypothetical Application. Roland T. Mayer, *General Electric Company* (JSR **20**, 2, p. 158) Article based on AIAA Paper 81-0438

A83-028 Assessment of Future Solid Rocket Motor Flight Instrumentation/Data Needs. Warren L. Allen, *Morton Thiokol Inc.* (JSR **20**, 2, p. 164) Article based on AIAA Paper 81-1550

A83-029 July 1981 NASA Workshop on Passive Remote Sensing of the Troposphere. L. S. Keafer Jr. and H. G. Reichle Jr., *NASA Langley Research Center* (JSR **20**, 2, p. 172) Article based on AIAA Paper 81-0207

A83-030 Augmented Electrothermal Hydrazine Thruster Development. H. D. Schmitz and M. Steenborg, *ERNO Raumfahrttechnik GmbH* (JSR **20**, 2, p. 178) Article based on AIAA Paper 81-1409

A83-031 SCATHA Conductive Spacecraft Materials Development. William L. Lehn, *Air Force Wright Aeronautical Laboratories* (JSR **20**, 2, p. 182) Article based on AIAA Paper 82-0263

A83-032 Aerodynamics of Asymmetric Sabot Discard. E. M. Schmidt and P. Plostins, *Ballistic Research Laboratory, Aberdeen Proving Ground* (JSR **20**, 2, p. 187) Engineering Note based on AIAA Paper 82-1301

A83-033 Scattering of Radiation by Particles in Low-Altitude Plumes. R. B. Lyons, J. Wormhoudt and J. Gruninger, *Aerodyne Research Inc.* (JSR **20**, 2, p. 189) Engineering Note

A83-034 Limiting Payload Deceleration During Ground Impact. Alan Mironer and Robert Urquhart, *Analytical Systems Engineering Corporation*; and Roy Walters, *Air Force Geophysics Laboratory, Hanscom Air Force Base* (JSR **20**, 3, p. 193) Synoptic based on AIAA Paper 81-1918

A83-035 Rigid Body Collision Model for Submunition Dispersion Simulation. James W. Purvis, *Sandia National Laboratories* (JSR **20**, 3, p. 195) Article based on AIAA Paper 82-0363

A83-036 Impingement of an Oblique Shock Wave on a Cylinder. C. M. Hung, *NASA Ames Research Center* (JSR **20**, 3, p. 201) Article based on AIAA Paper 82-0025

A83-037 Hypersonic Viscous Flows Past General Bodies at Angle of Attack and Yaw. M. D. Kim and C. H. Lewis, *Virginia Polytechnic Institute and State University* (JSR **20**, 3, p. 207) Article

A83-038 Comparisons of STS-1 Experimental and Predicted Heating Rates. E. Vincent Zoby, *NASA Langley Research Center* (JSR **20**, 3, p. 214) Article based on AIAA Paper 82-0002

A83-039 Benchmark Determination of Shuttle Orbiter Entry Aerodynamic Heat-Transfer Data. David A. Throckmorton, *NASA Langley Research Center* (JSR **20**, 3, p. 219) Article based on AIAA Paper 82-0003

A83-040 An Empirical Method for Computing Leeside Centerline Heating on the Space Shuttle Orbiter. Vernon T. Helms III, *NASA Langley Research Center* (JSR **20**, 3, p. 225) Article based on AIAA Paper 81-1043

A83-041 Analysis of STS-2 Experimental Heating Rates and Transition Data. E. Vincent Zoby, *NASA Langley Research Center* (JSR **20**, 3, p. 232) Article based on AIAA Paper 82-0822

A83-042 Substellite Studies of Wave, Plasma, and Chemical Injections from Spacelab. Stanley D. Shawhan, *University of Iowa*; James L. Burch, *Southwest Research Institute*; and Robert W. Fredricks, *TRW* (JSR **20**, 3, p. 238) Article based on AIAA Paper 82-0085

A83-043 Bit Error Rate Evaluation of GSTDN/TDRSS Communication Links. Randall E. Coffey and George M. Lawrence, *University of Colorado*; and James R. Stuart, *Jet Propulsion Laboratory, California Institute of Technology* (JSR **20**, 3, p. 245) Article based on AIAA Paper 82-0331

A83-044 Hydrocarbon Rocket Engines for Earth-to-Orbit Vehicles. James A. Martin, *NASA Langley Research Center* (JSR **20**, 3, p. 249) Article based on AIAA Paper 81-1371

A83-045 Service Life Analysis of Rocket Motors with Internal Gas Generation. George E. Weeks and Thomas L. Cost, *The University of Alabama*; and Donald L. Martin Jr., *U. S. Army Missile Command, Redstone Arsenal* (JSR **20**, 3, p. 257) Article based on AIAA Paper 81-1546

A83-046 MX Launcher Gas Generator Development. J. A. McKinnis and A. R. O'Connell, *Martin Marietta Aerospace* (JSR **20**, 3, p. 259) Article based on AIAA Paper 81-1577

A83-047 Theoretical and Experimental Evaluation of an Indoor Rocket Test Stand. P. A. O. G. Korting and H. J. Reitsma, *Prins Maurits Laboratory TNO (The Netherlands)* (JSR **20**, 3, p. 266) Article

A83-048 Methods for Validating Computer Simulation Models of Missile Systems. Douglas C. Montgomery, *Georgia Institute of Technology*; and Latricha Greene, *Army Missile Laboratory, U. S. Army Missile Command* (JSR **20**, 3, p. 272) Article

A83-049 Man-Made Debris in Low Earth Orbit--A Threat to Future Space Operations. Robert C. Reynolds, *Battelle's Columbus Laboratories*; Norman H. Fischer, *Battelle Columbus Laboratories*; and Eric E. Rice, *Battelle's Columbus Laboratories* (JSR **20**, 3, p. 279) Article

A83-050 Test/Flight Thermal Data Comparisons for Viking and SCATHA. R. D. Rempt, *Martin Marietta Aerospace* (JSR **20**, 3, p. 286) Article based on AIAA Paper 81-2479

A83-051 Artificial Electron Beams as Probes of the Magnetosphere. John R. Winckler, *University of Minnesota* (JSR **20**, 3, p. 293) Article based on AIAA Paper 82-0142

A83-052 Measured Performance of a Multimegawatt MPD Thruster. R. L. Burton, K. E. Clark and R. G. Jahn, *Princeton University* (JSR **20**, 3, p. 299) Article based on AIAA Paper 81-0684

A83-053 Characterization of Advanced Electric Propulsion Systems. Pradosh K. Ray, *Tuskgee Institute* (JSR **20**, 3, p. 305) Article based on AIAA Paper 82-1246

A83-054 Design and Testing of a Water Tip Jet Propeller. C. A. Gongwer, *Innerspace Corporation*; and J. A. Nowatzki, *Bendix Corporation* (JSR **20**, 3, p. 310) Engineering Note based on AIAA Paper 81-1530

A83-055 Scaling Analysis of Thermoacoustic Convection in a Zero-Gravity Environment. Robert J. Krane and Masood Parang, *University of Tennessee* (JSR **20**, 3, p. 316) Engineering Note based on AIAA Paper 82-0919

A83-056 Exceedance Statistics of Accelerations Resulting from Thruster Firings on the Apollo-Soyuz Mission. George H. Fichtl and Robert L. Holland, *NASA Marshall Space Flight Center* (JSR **20**, 3, p. 318) Engineering Note

A83-059 Real Gas Flows Over Complex Geometries at Moderate Angles of Attack. S. Swaminathan, M. D. Kim and Clark H. Lewis, *Virginia Polytechnic Institute and State University* (JSR **20**, 4, p. 321) Synoptic based on AIAA Paper 82-0392

A83-060 Accuracy Criteria For Evaluating Supersonic Missile Aerodynamic Coeffient Predictions. Robert J. Krieger and John E. Williams, *McDonnell Douglas Astronautics Company* (JSR **20**, 4, p. 323) Article based on AIAA Paper 81-1894 CP816

A83-061 Nonequilibrium Viscous Shock-Layer Flows over Blunt Sphere-Cones at Angle of Attack. S. Swaminathan, M. D. Kim and Clark H. Lewis, *Virginia Polytechnic Institute and State University* (JSR **20**, 4, p. 331) Article

A83-062 Aerodynamics of Wraparound Fins. B. Bar-Haim and A. Seginer, *Technion-Israel Institute of Technology* (JSR **20**, 4, p. 339) Article

A83-063 Axisymmetric Nose Inlet Effects on Supersonic Airloads. Martin R. Fink and Warren E. Anderson, *United Technologies* (JSR **20**, 4, p. 346) Article based on AIAA Paper 82-1302

A83-064 Plume/Flowfield Jet Interaction Effects on the Space Shuttle Orbiter during Entry. David B. Kanipe, *NASA Lyndon B. Johnson Space Center* (JSR **20**, 4, p. 351) Article based on AIAA Paper 82-1319

A83-065 Equivalent Angle-of-Attack Method for Estimating Nonlinear Aerodynamics of Missile Fins. M. J. Hemsch and J. N. Nielsen, *Nielsen Engineering & Research, Inc.* (JSR **20**, 4, p. 356) Article based on AIAA Paper 82-1338

A83-066 Design for Temperature and Thermal Buckling Constraints Employing a Noneigenvalue Formulation. Raphael T. Haftka, *Virginia Polytechnic Institute and State University* (JSR **20**, 4, p. 363) Article

A83-067 In-Flight Pressure-Time Recording for Short Burning-Time Rocket Motors. C. D. Bancroft and G. J. Williams, *Ministry of Defence, PERME (United Kingdom)* (JSR **20**, 4, p. 368) Article based on AIAA Paper 81-1551

A83-068 Aging Studies on Carboxy Terminated Polybutadiene (CTPB) Binder and Propellant. K. Kishore, V. R. Pai Verneker, V. Gayathri, K. R. Shubha and K. Sridhara, *Indian Institute of Science* (JSR **20**, 4, p. 371) Article

A83-069 Design Summary of the INTELSAT V Spacecraft. Christopher F. Hoeber and Neil J. Barberis, *Ford Aerospace & Communications Corporation* (JSR **20**, 4, p. 376) Article based on AIAA Paper 82-0537 CP821

A83-070 Scattered Visible and Ultraviolet Solar Radiation from Condensed Attitude Control Jet Plumes. C. E. Kolb and R. B. Lyons, *Aerodyne Research, Inc.*; J. B. Elgin, *Physical Sciences, Inc.*; R. E. Huffman, D. E. Paulsen and A. McIntyre, *Air Force Geophysics Laboratory, Hanscom Air Force Base* (JSR **20**, 4, p. 383) Article

A83-071 Shuttle Subsonic Horizontal Wind Estimation. G. Mel Kelly and John T. Findlay, *Analytical Mechanics Associates, Inc.*; and Harold R. Compton, *NASA Langley Research Center* (JSR **20**, 4, p. 390) Article

A83-072 Assessment of the Thermal Decomposition and Combustion Behavior of Double-Base Propellants. V. R. Pai Verneker and K. Kishore, *Indian Institute of Science*; and C. B. V. Subhas, *Defence Research and Development Laboratory (India)* (JSR **20**, 4, p. 398) Engineering Note

A83-073 Matrix/Fiber Interface Effects on Kevlar 49 Pressure Vessel Performance. N. A. Mumford, P. C. Hopkins and B. A. Lloyd, *Morton Thiokol/Wasatch Division* (JSR **20**, 4, p. 399) Engineering Note based on AIAA Paper 82-1069

A83-074 Prediction of Ice/Frost Growth on Insulated Cryogenic Tanks. P. J. Huffman and M. A. Dietenberger, *University of Dayton Research Institute* (JSR **20**, 4, p. 401) Engineering Note

A83-075 Calculation of Transient Thermal Stresses in Solid Rocket Propellants. Thomas L. Cost, *The University of Alabama* (JSR **20**, 4, p. 403) Engineering Note based on AIAA Paper 82-1098

A83-076 Modeling Solid-Fuel Ramjet Combustion, Including Radiation to the Fuel Surface. Michael E. Metochianakis and David W. Netzer, *Naval Postgraduate School* (JSR **20**, 4, p. 405) Engineering Note

A83-077 Nonequilibrium Radiative Heating during Outer Planet Atmospheric Entry. H. F. Nelson, *University of Missouri-Rolla* (JSR **20**, 4, p. 407) Engineering Note

A83-078 Effect of Low Reynolds Number Turbulence Amplification on the Galileo Probe Flowfield. R. N. Gupta and J. N. Moss, *NASA Langley Research Center* (JSR **20**, 4, p. 409) Engineering Note

A83-079 Procedure for Generating Ground Wind Environments for Shuttle Liftoff Studies. George H. Fichtl and Clark Brown, *NASA Marshall Space Flight Center* (JSR **20**, 4, p. 411) Engineering Note

A83-080 Comprehensive Missile Aerodynamics Programs for Preliminary Design. M. F. E. Dillenius and M. J. Hemsch, *Nielsen Engineering & Research, Inc.*; W. C. Sawyer, J. M. Allen and A. B. Blair Jr., *NASA Langley Research Center* (JSR **20**, 4, p. 414) Engineering Note based on AIAA Paper 82-0375

A83-081 Electrostatic Charging and Radiation Shielding Design Philosophy for a Synchronous Satellite. W. R. Elkman, E. M. Brown, D. V. Z. Wadsworth, E. C. Smith and P. F. Adams, *Hughes Aircraft Company* (JSR **20**, 5, p. 417) Article based on AIAA Paper 82-0116

A83-082 Summary of Environmentally Induced Electrical Discharges on the P78-2 (SCATHA) Satellite. H. C. Koons, *The Aerospace Corporation* (JSR **20**, 5, p. 425) Article based on AIAA Paper 82-0264

A83-083 Transient Pulse Monitor Data from the P78-2 (SCATHA) Spacecraft. R. C. Adamo, *SRI International*; and J. R. Matarrese, *Science Applications, Inc.* (JSR **20**, 5, p. 432) Article based on AIAA Paper 82-0265

A83-084 A Summary of Spacecraft Charging Results. P. F. Mizera, *The Aerospace Corporation* (JSR **20**, 5, p. 438) Article based on AIAA Paper 82-0268

A83-085 Contamination Measurements During Operation of Hydrazine Thrusters on the P78-2 (SCATHA) Satellite. D. J. Carre and D. F. Hall, *The Aerospace Corporation* (JSR **20**, 5, p. 444) Article based on AIAA Paper 82-0079

A83-086 Pulsed Plasma Thruster Ignitor Plug Ignition Characteristics. M. E. Brady, *Boeing Aerospace Company*; and G. Aston, *Jet Propulsion Laboratory, California Institute of Technology* (JSR **20**, 5, p. 450) Synoptic based on AIAA Paper 82-0924

A83-087 Effects of External Burning on Spike-Induced Separated Flow. J. Peter Reding and Dennis M. Jecmen, *Lockheed Missiles & Space Company, Inc.* (JSR **20**, 5, p. 452) Synoptic based on AIAA Paper 82-1360

A83-088 Chemical Equilibrium Laminar or Turbulent Three-Dimensional Viscous Shock-Layer Flows. R. R. Thareja, K. Y. Szema and C. H. Lewis, *Virginia Polytechnic Institute and State University* (JSR **20**, 5, p. 454) Article based on AIAA Paper 82-0305

A83-089 Optimization of Waverider Configurations Generated from Axisymmetric Conical Flows. B. S. Kim, M. L. Rasmussen and M. C. Jischke, *The University of Oklahoma* (JSR **20**, 5, p. 461) Article based on AIAA Paper 82-1299

A83-090 Hypersonic Dynamic Testing of Ablating Models with Three-Degree-of-Freedom Gas Bearing. F. J. Regan and M. V. Krumins, *Naval Surface Weapons Center* (JSR **20**, 5, p. 470) Article based on AIAA Paper 82-1367

A83-091 A Spacelab Principal Investigator's Guidance for Planning Scientific Experiments Using the Shuttle. Stanley D. Shawhan, *The University of Iowa* (JSR **20**, 5, p. 477) Article based on AIAA Paper 81-0272

A83-092 Classification of Orbits with Regard to Collision Hazard in Space. V. A. Chobotov, *The Aerospace Corporation* (JSR **20**, 5, p. 484) Article

A83-093 Orbital and Cloud Cover Sampling Analyses for Multisatellite Earth Radiation Budget Experiments. Edwin F. Harrison and Patrick Minnis, *NASA Langley Research Center*; and Gary G. Gibson, *Kentron Technical Center* (JSR **20**, 5, p. 491) Article

A83-094 Unfurlable Offset Antenna Design for L- and C-Band Application. W. Schafer and H. Herbig, *Messerschmitt-Bilkow-Blohm GmbH (FRG)*; A. Roederer, *European Space Research and Technology Centre (The Netherlands)*; and K. Pontoppidan, *TICRA (Denmark)* (JSR **20**, 5, p. 496) Article based on AIAA Paper 82-0443 CP821

A83-095 A High-Speed, Time-Division Multiple-Access Communication Link Demonstration. W. Callanan, *The Western Union Telegraph Company*; D. Rose and Z. Sarkozy, *TRW Electronics and Defense* (JSR **20**, 5, p. 503) Article based on AIAA Paper 82-0548 CP821

A83-096 Product Decompositions for Certain Types of Coordinate Transformation. Terrence W. Barbee, *Space Applications Corporation* (JSR **20**, 5, p. 510) Article

A83-097 Development of Aerodynamic Uncertainties for the Space Shuttle Orbiter. James C. Young and Jimmy M. Underwood, *NASA Johnson Space Center* (JSR **20**, 6, p. 513) Article based on AIAA Paper 82-0563 CP822

A83-098 Space Shuttle Entry Longitudinal Aerodynamic Comparisons of Flight 2 with Preflight Predictions. Paul O. Romere and James C. Young, *NASA Lyndon B. Johnson Space Center* (JSR **20**, 6, p. 518) Article based on AIAA Paper 82-0565 CP822

A83-099 Orbiter Entry Leeside Heat-Transfer Data Analysis. D. A. Throckmorton and E. V. Zoby, *NASA Langley Research Center* (JSR **20**, 6, p. 524) Article based on AIAA Paper 83-0484

A83-100 Turbulence Modeling of Flowfields with Massive Surface Ablation. R. N. Gupta, *NASA Langley Research Center* (JSR **20**, 6, p. 531) Article based on AIAA Paper 82-0198

A83-101 Experimental Surface Pressures on Cone-Derived Waveriders for $M_\infty = 3$-5. M. C. Jischke and M. L. Rasmussen, *The University of Oklahoma;* and D. C. Daniel, *Air Force Armament Laboratory* (JSR **20**, 6, p. 539) Article based on AIAA Paper 82-0249

A83-102 Space Platform Accommodations. Wayne Bailey, *Teledyne Brown Engineering*; and Max E. Nein, *NASA Marshall Space Flight Center* (JSR **20**, 6, p. 546) Article based on AIAA Paper 82-1814

A83-103 Automatic Thermal Control Switches. Lawrence D. Wing, *Goddard Space Flight Center* (JSR **20**, 6, p. 553) Article based on AIAA Paper 82-1764 CP828

A83-104 A Constitutive Formulation for High-Elongation Propellants. S. R. Swanson, *University of Utah*; and L. W. Christensen, *Hercules Incorporated* (JSR **20**, 6, p. 559) Article

A83-105 Test Verification of LOX/RP-1 High-Pressure Fuel/Oxidizer-Rich Preburner Designs. B. R. Lawver, *Aerojet Liquid Rocket Company* (JSR **20**, 6, p. 567) Article based on AIAA Paper 82-1153

A83-106 Swirl Combustor Flow Visualization Studies in a Water Tunnel. J. A. Schetz, P. W. Hewitt and R. Thomas, *Virginia Polytechnic Institute and State University* (JSR **20**, 6, p. 574) Article based on AIAA Paper 82-1238

A83-107 Low-Cost Titanium Propellant Tankage. A. E. Leach and R. J. Szpakowski, *Bell Aerospace Textron* (JSR **20**, 6, p. 583) Article based on AIAA Paper 82-1228

A83-108 Lifting Entry Vehicle Mass Reduction Through Integrated Thermostructural/Trajectory Design. Kathryn E. Wurster, *NASA Langley Research Center* (JSR **20**, 6, p. 589) Article based on AIAA Paper 80-0363

A83-109 Mission Analysis Techniques for Attached Shuttle Payloads. Scott D. Lambros, *NASA Goddard Space Flight Center* (JSR **20**, 6, p. 597) Article based on AIAA Paper 82-1759 CP828

A83-110 The Electrothermal Ramjet. P. J. Wilbur, C. E. Mitchell and B. D. Shaw, *Colorado State University* (JSR **20**, 6, p. 603) Article based on AIAA Paper 82-1216

A83-111 The Flexible Magnetic Field Thruster. John R. Brophy and Paul J. Wilbur, *Colorado State University* (JSR **20**, 6, p. 611) Article based on AIAA Paper 82-1936

A83-112 A Frequency-Division Multiple-Access System Concept for 30/20 GHz High-Capacity Domestic Satellite Service. G. Berk, P. N. Jean, E. Rotholz and B. E. White, *The MITRE Corporation* (JSR **20**, 6, p. 619) Article based on AIAA Paper 82-0447 CP821

A83-113 Improved Satellite Repeater Amplitude-Frequency Measurement. P. Daly, *University of Leeds*; and D. G. Tits, *Interim Eutelsat* (JSR **20**, 6, p. 626) Engineering Note

A83-114 HZE Particle Shielding Using Confined Magnetic Fields. L. W. Townsend, *NASA Langley Research Center* (JSR **20**, 6, p. 629) Engineering Note